



RADIO AMATEUR ASSOC



BEAT

COLO. SPRINGS,
COLORADO

AUGUST 1982



The Shape Of Things To Come...

**THE REVOLUTION —
You Might As Well Join It,
Because You Sure Can't Beat It!
(PART I)**

Whether you know it or not, you are in the midst of an honest to goodness Revolution. It's happening all around you, and hiding or trying to ignore it won't make you less a party to it. As sure as you are reading these words, it is not only going to change the rest of your life, but is also altering the destiny of the world.

No — no army is trying to overthrow our government. I'm speaking of a different kind of revolution. It's a quiet and subtle kind — one similar to the Industrial Revolution of the 1800's. What is it? It's the Computer Revolution. Now don't make the mistake of underestimating its impact. Before it's over, you'll possibly own a dozen or more computers serving you in such areas as monitoring and controlling vital functions in your house and car, in numerous appliances and, of course, for personal use.

The state of the art of digital and computer technology is expanding in explosive proportions. If you are associated with electronics as either a career or a hobby, you'd better join the revolution right now or be swiftly left behind. In a short time, nearly every electronic device we touch will be "processor" oriented.

Ever since the end of World War II when the University of Pennsylvania invented ENIAC, the first "large scale" digital computer, the advancement of digital technology has been accelerating. The ENIAC weighed 30 tons, had 18,000 vacuum tubes and consumed 130,000 watts of power. Today, less than 40 years later, the Radio Shack vest pocket computer has more computing power than did the ENIAC.

To help enlighten and keep you abreast of the expanding state of computer technology, we are going to publish a series of articles about computers. The first article will trace the history of computers. We will follow

the evolutionary development from its humble beginnings to the present state of the art.

The subsequent article will discuss the present state of computer technology. We will talk about 8 and 16 bit microprocessors. We will also discuss who's who in the personal computer industry, and who is using what microprocessor chips in the design of their systems and why. We will classify the types of microprocessors into family groups and talk about the different design philosophies used in developing microprocessor IC's. We will wrap up the article by pointing out good and not so good features of today's 8 bit microprocessors, and will discuss what is clearly the best 8 bit microprocessor on the market today. We will address who is using it and what makes it so good.

The next article will address where the world of computers is heading. We will not only discuss powerful integrated circuits that are in the final stages of development but will also include concepts like "Josephson's Junction" and UHSIC (very high speed integrated circuits) that make today's processing standards archaic. Many exciting and amazing things are happening which challenge the very limits of our imagination. Using these developments to build on, we're going to make some predictions that would make the days of Flash Gordon look like small peanuts.

Finally, we are going to wrap up the series with a typical design example of a small 8 bit computer. The computer will have 2K bytes of ROM, 1K byte of RAM, 5 parallel I/O ports, a 14 bit interval timer and a serial I/O port with cassette interface. The total hardware cost of this "Microframe" is less than \$50.00. Although we won't go very deep into the programming aspects, we will discuss each of the component chips involved and develop a general discussion of their function.

See you next month when we talk about the history of computers.

Allen Bailly, ADØZ

P.P.R.A.A. DIRECTORS

PRESIDENT	Al Bailey ADØZ	2715 Alteza Ln. 80917	597-8514
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(*Two-year board terms began October 1981)

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The Pikes Peak Radio Amateur Association meets on the second Wednesday of every month at the First United Methodist Church, 420 N. Nevada, at 7:30 p.m. All amateurs and interested parties are invited to attend.

Editor: Don Lohse KBØKQ, 1410 E. LaSalle, Colorado Springs, CO 80907 635-7469

MEETING MINUTES

The July meeting of the Pikes Peak Radio Amateur Association was called to order at 7:30 p.m. on Wednesday, 14 July 1982, by president Al Bailey, ADØZ.

After introduction of guests and members, a program was presented on components by Ken Morey, a components engineer for Hewlett Packard. Capacitors, inductors, and resistors are, we learned, more than what meets the eye.

After a short break, drawings were held for the door prizes and a business meeting was held. The treasurer reported \$2560 in the club's accounts with \$350 earmarked for next year's swapfest and \$200 for the purchase of emergency communications equipment. The RFI committee reported 2 cases of TVI under investigation. Some discussion was again held concerning RFI with or by TV cable services. If you feel you have something to report concerning this topic, call Greg, KAØFOZ, or contact a club member so we may centralize our knowledge.

Public Relations Committee asked for pictures from Swapfest or Field Day for the club's files. Mark is also in the process of contacting ARRL concerning a TV commercial regarding ham radio.

A sign up sheet was passed around for those interested in providing communications for the Pikes Peak Rodeo Parade on 3 Aug. Seven or eight people with HTs are needed.

Dick, WBØDUL, from the Mountain ARC announced that group's upcoming Swapfest at Red Rocks Campground north of Woodland Park on Hwy. 67. The door prizes mentioned and the available camping at the area sounds like a super weekend is planned. Dick also mentioned that the Woodland Park repeater is an open machine with everyone welcome to use it. (145.16 MHz — 600 KC input). Thanks for the report, Dick, and good luck on the Swapfest.

Ken, WØTGL, debriefed us on the torchlite procession to the Olympic Training Center. Ken organized the communications as well as being liason with the OTC and he extended his thanks to Jim and

Charlene Colvin for their help with the event. There was also a reminder of the magnitude of the communications for Sportsfestival to be held next year. (Last time we used over 100 amateur operators).

Oak, KØROL, gave a short show-and-tell on the hazards of lightning with a scanner that had been struck. 20,000 Amps turns things to the well-done side of crispy.

The meeting adjourned at 10:00 P.M.

Respectfully submitted,
Greg, KAØFOZ

NOTE: Articles concerning technical information are printed in Zero Beat for the consideration of readers. Zero Beat does not vouch for the accuracy of data or applications of that data.

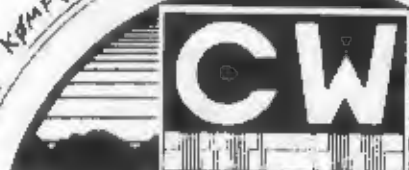
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If it's CW, it's communications.

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BOB KØLGF
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800 Lincoln St. Denver, CO 80203

BOARD MINUTES

The Board meeting of the PPRAA was called to order at 8:10 p.m. at the home of Doug, WBØMHP. Members present were Greg, KAØFOZ; Al, ADØZ; Les, WDØGTA; Karl, K4DQ; Tom, ADØO; and Mark, KAØJXW.

A discussion concerning the possibility of lowering the club's dues was the first agenda item. Doug moved, Greg seconded, to leave the dues at the present level. The motion passed unanimously. Consensus seemed to be that dues payment was not the central issue of the current lower membership.

WAØVTU is the club call. That call is held by an inactive member. The board agreed that the trustee of the club call should be an active member. Doug moved, Greg seconded, that a letter be posted to the present trustee concerning the transfer of the license to an active member. The motion passed unanimously.

Mark mentioned the public service announcement available from ARRL and indicated KKTU was interested. He is also trying to arrange placement with Channel 5, KOA.

A desire was expressed by the board to continue the door greeter process as it appeared to work well.

Doug moved, Mark seconded, to take the \$200 donated by the CMTRA and \$113.50 from coax sales, have the club provide matching funds (not to exceed \$627 total) and purchase a decent a.c. generator. The motion passed unanimously.

The club picnic is set for Sept. 26 at the Black Forest Pavilion. Greg volunteered to buy the chips, charcoal, etc.

Those persons who spent money for gas, etc. for the generators/stoves at Field Day should contact Doug for reimbursement. Concern was expressed by the Board about safety of persons at FD, and felt this area should be examined more closely next year.

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Les volunteered to examine old Zero Beats and begin a column of the way it was.

Some discussion revolved around the boards nominees for elections.

The August program will be conducted by Ed Means and will be about satellites.

There being no further business before the board, the meeting was adjourned at 10:06 p.m. The next meeting will be at Karl's home.

Respectfully submitted,
Mark, KAØJXW

SPECIAL NOTE

William Nelson, a Consultant for California Edison, author of the RFI Handbook and one of the countries' leading experts on RFI will speak at our September meeting. Mr. Nelson's visit is sponsored by the Colo. Springs Dept. of Public Utilities. The program will feature a multi-media program. More details next month — **mark your calendar NOW!**



**Zero Beat editor without
your help.**

AMATEURS WIN IMPORTANT VICTORY IN CABLE T.V.I. CASE

As reported in *The Westlink Report*, pressure from amateurs in Lompac, CA, has forced Teleprompter to move their cable channel "E" service (145.25 MHz, in the 2-meter amateur band) to channel "O" (247.25 MHz). Severe interference to and from amateur 2-meter repeater operations caused by signal leakage on the CATV system has been a continual source of annoyance to amateurs and viewers alike, and has resulted in the filing of numerous complaints with the FCC.

While Teleprompter indicated that the move from channel "E" was voluntary, they reserved the right to reoccupy the channel when the signal-leakage problem was resolved. The CATV operator did say, however, that if this channel was used again, the company would coordinate its implementation with local amateurs.

Meanwhile, FCC investigations into amateur complaints about both the Teleprompter operation in Lompac and Sonic Cable TV's operation in San Luis Obispo, CA, found these CATV systems not to be in compliance with FCC Regulations. Consequently, the two companies were issued "Letters of Non-Compliance" which required them to provide the Commission with written replies within 15 days as to the steps they have taken to correct the CATV situations cited.

Amateurs are urged to file complaints with both the FCC and the ARRL when CATV is experienced. Of particular concern is interference to or from operations on the following frequencies:

Centennial ★ ★ RCA ELECTRONICS

2324 East Bijou, Colorado Springs, CO 80909
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UU	421.25
VV	427.25
WW	433.25
XX	439.25
YY	445.25

For a detailed discussion of CATV, readers are referred to Dickinson's article, "Entertainment and Interference: The Two Faces of CATV," QST, February, 1982.

from CQ Magazine, July 1982

Submitted by Mark, KA0JX

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DAVE WD0CDU • JERA N0JAGT

NOTE:

The problems and solutions in this article may well have local impact. There have been reports of interference to local 2 meter operations in the 145 MHz range.

MEETING NOTICE

The August meeting of the Pikes Peak Radio Amateur Association will be held on August 11 at 7:30 p.m. at the First United Methodist Church located at the corner of Nevada and Boulder streets. The program will be given by Ed Means W0VO, and will cover all the newest and latest in the world of amateur satellites. Members and interested persons are invited to attend.

TNX

A note of thanks to the people who submitted articles to this issue of Zero Beat. It makes such a difference when people like you take the time to sit down and put something together that we can print. Your effort reaches every reader and makes Zero Beat worth reading. I hope those of you who may be considering submitting an article will do so, then we all can look forward to more good issues of our newsletter.

Don KB0KQ

MILEY'S RADIO

Jess KØTAA 719 W. 7th St. Florence, Colorado 784-3040

Prices on new equipment listed includes shipping to your door. (if you pick up—deduct shipping).

NEW EQUIPMENT IN STOCK

Om 730 HF \$695.
 Kenwood TS 830S \$850.
 Kenwood 130S \$650.
 New Icom 740 \$999.
 Kenwood TR-7850 40W \$375.
 Kenwood TR-7730 mini 25W w/TTM 299.
 New Santec 144 2 M HT \$299.
 Icom 2AT HT Reg. \$269 Now \$239.
 Icom 2A Reg. \$239 Now \$219.
 Extra Icom batteries, chrgs. & etc. in stock.
 Demo Azden PCS 3000 w/ TT pad \$255.
 Azden PCS 2800 10M FM \$249.
 KDK 2025 25W w/ TT mic \$259.
 New KDK 2030 mini 25W w/TTM \$279.
 New Azden PCS 300 HT \$288.
 Regency K100 10 channel programmable scanner,
 Reg. \$269 Sale \$169 while they last.
 AEA MT-1 Code Trainer \$90.
 Kantronics Field Day 2 Code Reader Demo, new warranty
 List \$460, Sale \$295.
 VoComm Power Pocket—25w amp/battery charger & eliminator for
 Icom IC 2A(T). Makes a 25w mobile out of your 2 A(T).
 List Price \$229. Introductory price \$189.

USED EQUIPMENT

Wilson MK 4 6 ch HT, wall chrg, 1 xtra battery, TT pad \$125.
 (2) Wilson 1405 5M HT w/ desk charger \$125.
 Heath HW 202 \$75.
 Genave GTX 2 12 ch. 2 meter FM, local xtals \$90.
 Hallicrafter SR 46 and SR 42A w/HA 26 VFO. Operates both 6
 and 2 meter. All 3 for \$100.
 Collins 75S3B Revr. \$450.
 Collins 32S1 Trans. \$250.
 Collins 516 F2 power supply \$135.
 Transceives as a pair—all 3 for \$700—mint condition.

Drake R4A, T4X, M5-4 p/s & spkr. Transceives as pair & ETEK
 FR-4 digital readout & counter. All cables, extra set
 of all tubes including finals. All for \$575.
 7 xtra crystals with R4A
 R4A separate \$225.
 T4X separate \$225.
 M54 power supply & speaker
 FR4 Digital Readout \$150.
 Hallicrafters SR 150 80-10 M trans, CW-SSB w/matching
 power supply & speaker. New finals & driver \$225.
 Complete Galaxy GT550 station. 550 w pep. 80-10 m CW-SSB
 trans. VOX, crystal calibrator, crystal sw. box,
 external VFO, speaker and cabinet. DC 1000 mobile HV AC
 supply \$349.
 Homebrew 900W linear. 4-811A's, small sized and good power.
 P/S 9½ w X 13½ d X 12 h. Amp 10 w X 14 d X 11 h \$150.
 Heath HW 8 QRP CW transceiver, 80-10m. \$99.
 Heath Frequency Counter to 225 MHz. \$100.
 VHF Engineering w/good crystal line up. \$75.

ANTENNAS

AEA Isopole 144. List \$49.95 Sale \$39.95
 Ringo Ranger ARX 2 w/o radials \$36.
 Mini Products HQ1 Mini Quad. 6-10-15-20.
 Reg. \$159.50—sale \$139.
 Cramped for space for 80 & 40 m antenna? Try the new Isotron 80 & 40—made
 in Colorado. 80 m is 54"x16"x18" only 7 lbs. 40 m 31"x16"x18" only 4 lbs. Both
 can be mounted back to back on TV mast and one feedline for both
 antennas—no radials needed. Can be used in apartment outside apt.
 window—or in your attic when you can't have outdoor antennas. 80 m—
 \$59.95 40 m—\$49.95. Intro prices for both 40 & 80—\$99.95
 ARRL Publications & Bash books
 Free with \$10.00 or more purchase 1 ARRL Mini Log. (Please Ask).

LAMENT of an Elderly HAM

My antenna blew down but I want you to know
 Just a line to say I'm living,
 That I'm not among the dead;
 Though I'm getting more forgetful
 and more "mixed up" in the head.
 For, sometimes I can't remember,
 When I stand at foot of stair,
 If I must go for something,
 Or I've just come down from there.
 And before the frige, so often,
 My poor mind is filled with doubt,
 Have I just put food away, or
 Have I come to take some out?
 And there's times when it is dark out,
 With my night cap on my head,
 I don't know if I'm retiring,
 Or just getting out of bed.
 But now, it's nearly mail time,
 So, I must say, "Good-bye, dear".
 There I stood beside the mailbox,
 With a face so very red,
 Instead of mailing you my letter,
 I had opened it instead.

Author unknown. Sent to me by a ham friend in Sun
 City, Calif.

Karl White, K4DQ

FOR SALE: Swan 400 with AC/DC power supply and
 mobile VFO. Recent factory reconditioned. \$200.
 Regency HR 212 2M transceiver \$40. Dave NØDV 473-
 0293.

FOR SALE: Swan Cygnet 300B, Knight T-60 (AM-CW
 trans., 80-6 m), Clegg 22'er (AM), SBE SB2-LA linear
 amplifier, 30 ft. aluminum tower (guys attached, exc.
 condition, down and ready to haul), 30 ft. and 20 ft. pipe
 masts (cheap), ceramic insulators, guy anchors. All rigs in
 excellent condition. Rose Ebel KAØEMV, 599-8842.

FOR SALE: HP 608D UHF signal generator. Warren
 WBØSJR 633-6161.

FOR SALE: Heathkit HW 202 10 Watt 2 Meter
 TRANSCIVER plus GIB Model 400B Channelizer. Full
 144-148 MC coverage in 10KC or 5 KC steps. Set-up with
 TT Pad included. \$100.00. Bill Lange — W1THA, 471-2234